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REMARKS

Claims 35, 37-39 remain and were rejected under 35 U.S.C. §103(a) as being unpatentable over Soykan (US 6,206,914) in view of Thompson et al. (US 5,800,465).

Soykan is relied upon as showing an implantable drug delivery system that monitors ECG signals to determine when to stimulate the delivery device to release a therapeutic agent. Soykan shows a coronary artery stent having a therapeutic agent that releases from the stent when an EMF is generated in the stent by radiation of an RF signal. The ECG is monitored for changes in the circulatory system. When a sudden change in ECG morphology is detected, an IPG produces a stimulation electrical signal to trigger release of the therapeutic agent from the stent.

Claim 35 specifies that a coronary sinus lead connected to an implantable cardiac rhythm management device includes a means for producing a signal representative of blood flow velocity through the coronary sinus. Claim 35 also specifies that means within the cardiac rhythm management device analyzes the sensed ventricular signals, the sensed atrial signals and the coronary sinus blood flow velocity signal and that means within the cardiac rhythm management device for delivering therapy to the patient's heart as a function of sensed electrical activity of a patient's heart and coronary sinus blood flow velocity.

The rejection is premised on the view that the only difference between the claimed invention and Soykan is that the coronary sinus lead has a blood flow meter. That is, the rejection finds that Soykan determines the onset of ischemia indirectly from ECG signals whereas the claimed invention determines the onset of ischemia directly from detected blood flow velocity within the coronary sinus. Applicants submit that the claimed subject matter as a whole presents more differences. However, as to this one difference, the office action takes the position that Thompson teaches a coronary sinus sense means and a flow meter,

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which is supposedly identified at column 14, lines 7-12. The characterization of Thompson is incorrect.

Thompson provides a system for multi-site pacing. The system uses an array of ventricular electrodes and an array of atrial electrodes. Each array is carried on an implanted lead that is connected to a pulse generator (45) that is adapted to deliver and steer composite pacing pulses to a selected heart chamber. One lead (30) is positioned in the coronary sinus vein. Lead 30 has a pair of proximal sense electrodes 140, 141 and a pair of distal electrodes 32, 33. Signals originating in the atrium are detected first at electrodes 140, 141. Signals originating in the ventricle are first detected at electrodes 32, 33. The electrode signals are compared to detect which electrode signal is first in time as an indication as to the origin of a cardiac signal. Thompson discloses as an alternative origination detection scheme, in place of the electrode comparator, the use of a Doppler detector and signal processor to "determine the location from which a sensed signal has originated." Nowhere does Thompson say anything about producing a signal representative of blood flow velocity through the coronary sinus. In every instance, Thompson is concerned only with determining the origin of a cardiac signal as being in the atrium or the ventricle. The Doppler detector in Thompson is a direction finder of pressure waves created when the heart chambers contract; it is not a means for producing a signal representative of blood flow velocity through the coronary sinus.

Therefore, even combining Thompson with Soykan does not result in the subject matter of claim 35. Relying upon Thompson does not provide any mechanism for determining blood flow velocity in the coronary sinus. Thus, Soykan would still have to rely upon ECG signals and their morphology as an indirect detection of reduced coronary sinus blood flow.

In addition, Soykan nor Thompson discloses delivering therapy to the patient's heart as a function of sensed electrical activity of a patient's heart and coronary sinus blood flow velocity.

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CONCLUSION

Applicants submit that the pending claims are in condition for allowance and request issuance of a notice of allowance in due course. The Examiner is invited to contact the undersigned to discuss any issues related to the present application.

Respectfully submitted,

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Paul H. McDowall
Reg. 34,873
Telephone: (763) 514-3351
Customer No. 27581